

SEP 24 2008

Application Serial No.: 10/655,143
Reply to Office Action of September 18, 2008

Atty. Dkt. No.
UCF-375

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

Claims 1 - 26 (Canceled).

Claim 27 (Currently Amended). A method for enhancing the survivability of living biological cells ~~in the body~~ comprising:

selecting a plurality of living biological cells ~~in the body~~, wherein the cells are brain cells;

adding *in-vitro*, one single application of non agglomerated, ultra fine, engineered nanoparticles of cerium oxide of the size approximately 2 nm to approximately 10 nm wherein the nanoparticles contain a plurality of oxygen vacancies in a lattice structure and the oxygen vacancies support biological activity as free radical scavengers to cultures of the plurality of living brain cells; and

enhancing a lifespan of the living brain cell cultures when the cerium oxide particles function as a regenerative free radical scavenger wherein after one free radical scavenging event has occurred, the cerium oxide particles remain biologically available for more than one free radical scavenging event.

Claim 28 (Canceled)

Claim 29 (Previously Presented). The method of claim 27, wherein the living brain cells are from wounded brain tissues in the body.

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Claims 30 – 31 (Canceled).

Claim 32 (Currently Amended). A method for enhancing the survivability of living biological cells, *in-vivo*, ~~The method of claim 27, further comprising the steps of:~~
selecting a patient suffering from vascular disease; and
administering a medically effective amount of non agglomerated, ultra fine, engineered nanoparticles of the cerium oxide of the size approximately 2 nm to approximately 10 nm,
wherein the nanoparticles contain a plurality of oxygen vacancies in a lattice structure and
the oxygen vacancies support biological activity as free radical scavengers to living brain
vascular cells, *in-vivo*, by coating and grafting at least one of a stent and other vascular
replacements to decrease free radical damage associated with vascular disease and
inflammatory response.

Claim 33 (Currently Amended). The method of claim [[27]] 32 , further comprising the step of administering the cerium oxide nanoparticles to living brain cells, *in-vivo*, by at least one of oral pharmaceutical composition, intravenous injection and intrathecal delivery.